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MENDELSOHN AND ASSOCIATES PC
1515 MARKET STREET
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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2633	13

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/781,864	Applicant(s) EIJK ET AL.	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,8,10-12,15-18,20-22,25 and 26* is/are rejected.

7)☒ Claim(s) *9,13,14,19,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,6,9 and 11*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshino (US Patent No. 5541962).

Regarding claim 7, Yoshino discloses an optical network comprising an optical splitter (fig. 2, element 13 and col. 4, lines 52-65) connected to (1) a working optical subscriber unit (OSU) of a working circuit via a working optical fiber (fig. 2, element 15a and col. 4, lines 52-65), (2) a protection OSU of a protection circuit via a protection optical fiber (fig. 2, element 15b and col. 4, lines 52-65), and (3) one or more optical network terminals (ONTs) (fig. 2, element 11 and fig. 8, elements 105-107), a method for enabling fast protection switching from the working OSU to the protection OSU, comprising the steps of: (a) synchronizing the working and protection OSUs (fig. 3, col. 6, lines 8-15 and col. 7, lines 42-47); (b) initiating a cell delineation procedure at the protection OSU during normal, non-ranging operations of the working OSU to enable the protection OSU to correctly delineate upstream cells (col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53 and col. 7, lines 1-37); (c) measuring arrival times of corresponding upstream cells at both the working and protection OSUs and (d) generating a propagation delay value based on the arrival times for use by the protection OSU for communications with the one or

more ONTs if and when protection switching is implemented upon detection of a failure in the working circuit (fig. 8 and col. 2, line 65 to col. 3, line 28).

Regarding claim 15, Yoshino discloses the network of claim 7, wherein ranging is not required to be performed by the protection OSU after the protection switching in order to support the communications with the one or more ONTs (col. 2, line 11 to col. 3, line 4).

Regarding claim 16, Yoshino discloses the network of claim 7, wherein step (a) comprises the step of synchronizing frame counters at both the working and protection OSUs (col. 7, line 42 to col. 8, line 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 11, 17, 18, 21, 22, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (US Patent No. 5541962) in view of Ashi et al. ("PON-based All Fiber-optic Access System For High-speed Multimedia Services", Ashi et al., Hitachi Review, Vol. 48 [1999], No. 4).

Regarding claim 8, Yoshino discloses that the network of claim 7 is a passive optical network utilizing time compression multiplexing (col. 1, lines 8-20), and discloses a passive optical splitter (fig. 2, element 13 and col. 4, lines 52-65), but does not disclose that the optical network conforms to ITU-T Recommendation 6.983.1. Ashi et al. disclose an optical network that is a passive optical network comprising TCM transmission and ATM transmission that conforms to ITU-T Recommendation 6.983.1 (Table 1), both transmission types occurring

between an OSU and multiple subscribers via an optical splitter (fig. 1 and fig. 2), and both sharing optical transmission facilties, fiber optic cable, and subscribers (page 229, overview and col. 1, paragraph 1 to page 230, col. 1, paragraph 3). It would have been obvious to one of ordinary skill in the art at the time of the invention, in light of the combined TCM and ATM PON disclosed by Ashi et al., that the PON, with protection, of Yoshino could also be used for ATM-PON applications conforming to ITU-T Recommendation 6.983.1, in addition to TCM transmission, to add standardized ATM network transmission services.

Regarding claim 11, Yoshino in view of Ashi et al. disclose the network of claim 7, wherein the propagation delay value is generated taking into account differences in upstream and downstream transmission speeds (Yoshino: col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53 and col. 7, lines 1-37) and disclose different upstream and downstream transmission wavelengths used for ATM-PON transmission (Ashi et al.: page 230, col. 2, paragraph 3), where the differences in transmission speeds for different upstream and downstream wavelengths are inherently accounted for by the protection scheme of Yoshino in view of Ashi et al. used for ATM-PON transmission, since the propagation delay is only affected by the difference in fiber length between the active and standby OSUs.

Regarding claim 17, Yoshino discloses an optical network, which inherently has network management means, comprising an optical splitter (fig. 2, element 13 and col. 4, lines 52-65) connected to (1) a working optical subscriber unit (OSU) of a working circuit via a working optical fiber (fig. 2, element 15a and col. 4, lines 52-65), (2) a protection OSU of a protection circuit via a protection optical fiber (fig. 2, element 15b ad col. 4, lines 52-65), and (3) one or more optical network terminals (ONTs) (fig. 2, element 11 and fig. 8, elements 105-107), a method for enabling fast protection switching from the working OSU to the protection OSU, comprising the steps of: (a) synchronizing the working and protection OSUs (fig. 3; col. 6, lines

8-15 and col. 7, lines 42-47); (b) initiating a cell delineation procedure at the protection OSU during normal, non-ranging operations of the working OSU to enable the protection OSU to correctly delineate upstream cells (col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53; and col. 7, lines 1-37); (c) measuring arrival times of corresponding upstream cells at both the working and protection OSUs and (d) generating a propagation delay value based on the arrival times for use by the protection OSU for communications with the one or more ONTs if and when protection switching is implemented upon detection of a failure in the working circuit (fig. 8; col. 2, line 65 to col. 3, line 28). Yoshino does not disclose a machine-readable medium, having encoded thereon program code, wherein, when the program code is executed by a machine, the machine implements the method for enabling fast protection in the disclosed optical network. Ashi et al. disclose an optical network that is a passive optical network comprising TCM transmission and ATM transmission, both transmission types occurring between an OSU and multiple subscribers via an optical splitter (fig. 1 and fig. 2), and both sharing optical transmission facilties, fiber optic cable, and subscribers (page 229, overview and col. 1, paragraph 1 to page 230, col. 1, paragraph 3). It would have been obvious to one of ordinary skill in the art at the time of the invention, in light of the combined TCM and ATM PON disclosed by Ashi et al., that the PON, with protection, of Yoshino could also be used for ATM-PON applications, in addition to TCM transmission, to add standardized ATM network transmission services. In addition, Ashi et al. disclose a machine-readable medium, where the machine implements network element management functions for the network, and thus inherently has program code executed for implementing the management functions (fig. 1, and page 231, col. 1, paragraphs 2 and 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the machine-readable medium to implement the method for enabling fast protection in the optical network.

Regarding claim 18, Yoshino discloses that the network of claim 17 is a passive optical network utilizing time compression multiplexing (col. 1, lines 8-20), and discloses a passive optical splitter (fig. 2, element 13 and col. 4, lines 52-65), but does not disclose that the optical network conforms to ITU-T Recommendation 6.983.1. Ashi et al. disclose an optical network that is a passive optical network comprising TCM transmission and ATM transmission that conforms to ITU-T Recommendation 6.983.1 (Table 1), both transmission types occurring between an OSU and multiple subscribers via an optical splitter (fig. 1 and fig. 2), and both sharing optical transmission facilties, fiber optic cable, and subscribers (page 229, overview and col. 1, paragraph 1 to page 230, col. 1, paragraph 3). It would have been obvious to one of ordinary skill in the art at the time of the invention, in light of the combined TCM and ATM PON disclosed by Ashi et al., that the PON, with protection, of Yoshino could also be used for ATM-PON applications conforming to ITU-T Recommendation 6.983.1, in addition to TCM transmission, to add standardized ATM network transmission services.

Regarding claim 21, Yoshino in view of Ashi et al. disclose the network of claim 17, wherein the propagation delay value is generated taking into account differences in upstream and downstream transmission speeds (Yoshino: col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53 and col. 7, lines 1-37) and disclose different upstream and downstream transmission wavelengths used for ATM-PON transmission (Ashi et al.: page 230, col. 2, paragraph 3), where the differences in transmission speeds for different upstream and downstream wavelengths are inherently accounted for by the protection scheme of Yoshino in view of Ashi et al. used for ATM-PON transmission, since the propagation delay is only affected by the difference in fiber length between the active and standby OSUs.

Regarding claim 22, Yoshino in view of Ashi et al. disclose the network of claim 17, wherein a conventional system performs initial ranging for an unprotected working OSU

(Yoshino: col. 1, lines 23-55), and where a propagation delay calculation procedure for a protection OSU is initiated during normal, non-ranging operations of a working OSU (Yoshino: col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53; and col. 7, lines 1-37), but does not disclose that the protection OSU is added to the optical network after ranging. However, if Yoshino discloses initial ranging for an unprotected OSU and discloses a propagation delay calculation procedure for a protection OSU initiated during normal, non-ranging operations of a working OSU, then it would have been obvious to one of ordinary skill in the art at the time of the invention that the protection OSU could be added to the originally unprotected network after the initial ranging, in order to decrease initial network equipment costs or to allow for an unprotected network to be upgraded to a protected network without having to interrupt normal operations of the working transmission.

Regarding claim 25, Yoshino in view of Ashi et al. disclose the network of claim 17, wherein ranging is not required to be performed by the protection OSU after the protection switching in order to support the communications with the one or more ONTs (Yoshino: col. 2, line 11 to col. 3, line 4).

Regarding claim 26, Yoshino in view of Ashi et al. disclose the network of claim 17, wherein step (a) comprises the step of synchronizing frame counters at both the working and protection OSUs (Yoshino: col. 7, line 42 to col. 8, line 2).

5. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (US Patent No. 5541962) in view of Ashi et al. ("PON-based All Fiber-optic Access System For High-speed Multimedia Services", Ashi et al., Hitachi Review, Vol. 48 (1999), No. 4) as applied to claims 8, 11 and 17 above, and further in view of Kim et al. (US Published Patent Application No. 09/735797).

Regarding claim 10, Yoshino discloses that the network of claim 7 is a passive optical network utilizing time compression multiplexing (col. 1, lines 8-20), and discloses a passive optical splitter (fig. 2, element 13 and col. 4, lines 52-65), and protection where an 8-bit pattern within an upstream frame is used for frame timing detection during non-ranging operation (col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53 and col. 7, lines 1-37), but does not disclose that the optical network uses upstream PLOAM cells not associated with ranging. Ashi et al. disclose an optical network that is a passive optical network comprising TCM transmission and ATM transmission, both transmission types occurring between an OSU and multiple subscribers via an optical splitter (fig. 1 and fig. 2), and both sharing optical transmission facilties, fiber optic cable, and subscribers (page 229, overview and col. 1, paragraph 1 to page 230, col. 1, paragraph 3). It would have been obvious to one of ordinary skill in the art at the time of the invention, in light of the combined TCM and ATM PON disclosed by Ashi et al., that the PON, with protection, of Yoshino could also be used for ATM transmission, in addition to TCM transmission, to add ATM network transmission services. In addition, Kim et al. disclose that within an ATM frame, PLOAM cells are used for Operation and Maintenance in an ATM-PON, thus inherently used during non-ranging operation, and disclose message fields within a PLOAM cell and upstream PLOAM cells in the upstream ATM frame (paragraphs 0008 to 0013). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the message field of an upstream PLOAM cell, within an ATM frame, for the 8-bit frame timing detection pattern of Yoshino in view of Ashi et al., to provide protection for ATM transmission using standard PLOAM cells in an ATM frame.

Regarding claim 20, Yoshino in view of Ashi et al. disclose that the network of claim 17 is a passive optical network utilizing time compression multiplexing (Yoshino: col. 1, lines 8-20), and discloses a passive optical splitter (Yoshino: fig. 2, element 13 and col. 4, lines 52-65), and

protection where an 8-bit pattern within an upstream frame is used for frame timing detection during non-ranging operation (Yoshino: col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53 and col. 7, lines 1-37), but do not disclose that the optical network uses upstream PLOAM cells not associated with ranging. Kim et al. disclose that within an ATM frame, PLOAM cells are used for Operation and Maintenance in an ATM-PON, thus inherently used during non-ranging operation, and disclose message fields within a PLOAM cell and upstream PLOAM cells in the upstream ATM frame (paragraphs 0008 to 0013). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the message field of an upstream PLOAM cell, within an ATM frame, for the 8-bit frame timing detection pattern of Yoshino in view of Ashi et al., to provide protection for ATM transmission using standard PLOAM cells in an ATM frame.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (US Patent No. 5541962).

Regarding claim 12, Yoshino discloses the network of claim 7, wherein a conventional system performs initial ranging for an unprotected working OSU (col. 1, lines 23-55), and where a propagation delay calculation procedure for a protection OSU is initiated during normal, non-ranging operations of a working OSU (col. 2, line 65 to col. 3, line 28; col. 5, lines 39-53; and col. 7, lines 1-37), but does not disclose that the protection OSU is added to the optical network after ranging. However, if Yoshino discloses initial ranging for an unprotected OSU and discloses a propagation delay calculation procedure for a protection OSU initiated during normal, non-ranging operations of a working OSU, then it would have been obvious to one of ordinary skill in the art at the time of the invention that the protection OSU could be added to the originally unprotected network after the initial ranging, in order to decrease initial network

equipment costs or to allow for an unprotected network to be upgraded to a protected network without having to interrupt normal operations of the working transmission.

Allowable Subject Matter

7. Claims 9, 13, 14, 19, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

8. Applicant's arguments filed 29 March 2004 have been fully considered but they are not persuasive.

Regarding claims 7 and 17, the applicant argues that Yoshino does not disclose cell delineation at the protection OSU during normal, non-ranging operations of the working OSU, citing the use of the Yoshino's term "down signal" and "delay measurement burst signal" as indicative of special ranging operations. However, Yoshino does indeed indicate cell delineation at the protection OSU during normal, non-ranging operations of the working OSU (col. 2, line 65 to col. 3, line 4), where the phrase "without interrupting ongoing communications" indicates Yoshino's intention that normal, non-ranging operations are not interrupted. The applicant also argues that Yoshino's use of a "delay measurement burst signal" that "comprises a preamble consisting of 8-bit alternating signal, and a frame pattern '10110010'" is indicative of special ranging operations. However, Yoshino discloses that "burst receiving" and "burst transmitting" and "detecting a frame pattern" are part of normal, non-ranging operations (col. 5, lines 16-53), where Yoshino discusses these terms in the context of the overall system architecture and not interrupting communications when switching from active to standby. Also, Yoshino's use of the

phrase "delay measurement burst signal comprises a preamble ..." does not disclose that special ranging cells are used in place of normal user data cells of the signal. On the contrary, considering Yoshino's intention of taking delay measurements for the protection OSU during normal operations of the working OSU (col. 2, line 65 to col. 3, line 4), combined with Yoshino only mentioning overhead data, not replacement of user date, as having a special purpose for delay measurement, there is no evidence of the applicant's argument that Yoshino's phrase "delay measurement burst signal comprises a preamble ..." indicates that normal user data cells of a signal with such a special preamble are replaced with special ranging cells. In addition, Yoshino's special overhead used during normal user data transmission does not indicate "special ranging operations" any more than the applicant's use of special overhead transmitted during normal user data transmission for delay measurements for the protection OSU (applicant's specification page 12, lines 3-20). Both Yoshino and the applicant use special overhead for delay measurement purposes while the user data is still transmitted as during normal operations. Lastly, the applicant points out correctly that the examiner admitted previously that Yoshino "does not disclose that the optical network uses upstream PLOAM cells not associated with ranging". However, the examiner's statement that Yoshino does not disclose using upstream PLOAM cells not associate with ranging does not mean that Yoshino discloses using upstream PLOAM cells associated with ranging. The examiner's statement is worded in response to the applicant's claim language. In fact, Yoshino doesn't teach PLOAM cells regarding either ranging or non-ranging, only TCM transmission in a PON network. The only conclusion, in light of the applicant's claim language, is that it is unknown in Yoshino if the optical network uses upstream PLOAM cells not associated with ranging.

Regarding claims 10 and 20, the applicant argues that the phrase used by the examiner, "that within an ATM frame, PLOAM cells are used for Operation and Maintenance in an ATM-

PON, thus inherently used during non-ranging operation" has nothing to do with the applicant's claimed invention, and that Kim does not provide the teachings missing from Yoshino and Ashi. However, the examiner disagrees that Yoshino and Ashi are missing the teachings that the applicant argues are missing (see above regarding claims 7 and 17). Further, the context of the examiner's phrase is that Kim teaches ATM PLOAM cells used during non-ranging operations, which the applicant has admitted is conventional. Since Yoshino is silent on PLOAM cells, yet discloses a TCM PON network, Kim teaches the viability of using ATM PLOAM cells in a TCM PON network, and that PLOAM cells are used during non-ranging operations. The applicant also argues that generation of propagation delay values is not part of conventional "Operation and Maintenance during non-ranging operations". However, the examiner did not assert that generation of propagation delay values is part of conventional O&M during non-ranging operations. The teaching of Kim is not a teaching regarding calculating propagation delay during non-ranging operations, which teaching is already provided by Yoshino. As stated, Kim teaches using ATM PLOAM signals in a TCM PON network. In addition, Kim teaches message fields within a PLOAM cell and upstream PLOAM cells in the upstream ATM frame. Where Yoshino teaches using special headers for propagation delay calculations, Kim teaches messages fields within a PLOAM cell in the ATM frame where the message field availability provides motivation to use the special headers of Yoshino in the PLOAM cell in the ATM frame.

Regarding claims 12 and 22, in addition to similar arguments made for claims 7 and 17 regarding non-ranging operations (see examiner response above), the applicant argues that Yoshino does not teach "initial ranging for an unprotected OSU" and that the examiner provides no citations to any passages in Yoshino in support of this statement. However, the examiner did cite a passage in Yoshino (col. 1, lines 23-55), where "the delay time of the burst signal from each subscriber equipment is measure beforehand" on lines 39-40 indicates initial ranging

(where "beforehand" clearly means before regular transmissions) and where "this correction method is effective only in the case where the station equipment involves no redundancy" on lines 46-47 indicates an unprotected OSU.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

10. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of

a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600